Textbook Alignment to the Utah Core – Algebra 2

This alignment has been completed using an "Independent Alignment Vendor" from the USOE approved list (www.schools.utah.gov/curr/imc/indvendor.html.) ***Yes N/A*** ***No N/A***

Name of Company and Individual Conducting Alignment:
Ryan Foster

A "Credential Sheet" has been completed on the above company/evaluator and is (Please check one of the following):

X On record with the USOE.

☐ The "Credential Sheet" is attached to this alignment.

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): Algebra 2 Core Curriculum

Title: Prentice Hall Mathematics, Algebra 2 © 2009 ISBN#: 013365947x (SE); 0133659496 (TE)

Publisher: Pearson Education, Inc. publishing as Prentice Hall

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: 90%

Overall percentage of coverage in *ancillary materials* of the Utah Core Curriculum: 6%

STANDARD I: Students will use the language and operations of algebra to evaluate, analyze and solve problems.

Percentage of coverage in the *student and teacher edition* for Standard I: 93 %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: N/A**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries***

Objective 1.1: Evaluate, analyze, and solve mathematical situations using algebraic properties and symbols.			
a. Solve and graph first-degree absolute value equations of a single variable.	**SE/TE: 33-38, 49-50**		
b. Solve radical equations of a single variable, including those with extraneous roots.	**SE/TE: 391-397, 425-426**		
c. Solve absolute value and compound inequalities of a single variable.	**SE/TE: 28-38, 49-50**		
d. Add, subtract, multiply, and divide rational expressions and solve rational equations.	**SE/TE: 510-527, 540-542**		
e. Simplify algebraic expressions involving negative and rational exponents.	**SE/TE: 368, 385-390, 424, 426**		
Objective 1.2: Solve systems of equations and inequalities.			
a. Solve systems of linear, absolute value, and quadratic equations algebraically and graphically.	**SE/TE: 118-132, 161-162, 164, 589**		
b. Graph the solutions of systems of linear, absolute value, and quadratic inequalities on the coordinate plane.	**SE/TE: 118-123, 161, 164**		
c. Solve application problems involving systems of equations and inequalities.	**SE/TE:118-138, 161-164**		
Objective 1.3: Represent and compute fluently with complex numbers.			
a. Simplify numerical expressions, including those with rational exponents.	**SE/TE: 385-390, 424, 426**		

b. Simplify expressions involving complex numbers and express them in standard form, a + bi.	**SE/TE: 275-280, 301-302**		
Objective 1.4: Model and solve quadratic equations and inequalities.			
a. Model real-world situations using quadratic equations.	**SE/TE: 238-244, 299-300, 302**		
b. Approximate the real solutions of quadratic equations graphically.	**SE/TE: 239, 245-251, 299-300, 302**		
c. Solve quadratic equations of a single variable over the set of complex numbers by factoring, completing the square, and using the quadratic formula.	**SE/TE: 267-273, 282-295, 301-302**		
d. Solve quadratic inequalities of a single variable.	**SE/TE: 296-297, 301-302**		
e. Write a quadratic equation when given the solutions of the equation.			
STANDARD II: Students will understand and represent functions and analyze function behavior.			
Percentage of coverage in the *student and teacher edition* for Standard II: <u>100</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard II: N/A**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries***
Objective 2.1: Represent mathematical situations using relations.			
a. Model real-world relationships with functions.	**SE/TE: 57-61, 78-87, 110-112**		
b. Describe a pattern using function notation.	**SE/TE: 58-61, 110, 112**		
c. Determine when a relation is a function.	**SE/TE: 55-61, 110, 112**		

d. Determine the domain and range of relations.	**SE/TE: 55-61, 110, 112**		
Objective 2.2: Evaluate and analyze functions.			
a. Find the value of a function at a given point.	**SE/TE: 58-61, 110, 112**		
b. Compose functions when possible.	**SE/TE: 399-405, 425-426**		
c. Add, subtract, multiply, and divide functions.	**SE/TE: 398-405, 425-426**		
d. Determine whether or not a function has an inverse, and find the inverse when it exists.	**SE/TE: 406-413, 425-426**		
e. Identify the domain and range of a function resulting from the combination or composition of functions.	**SE/TE: 399-405, 425-426**		
Objective 2.3: Define and graph exponential functions and use them to model problems in mathematical and real-world contexts.			
a. Define exponential functions as functions of the form $y = ab_x, b > 0, b \neq 1$.	**SE/TE: 430-438, 479, 482**		
b. Model problems of growth and decay using exponential functions.	**SE/TE: 430-438, 479, 482**		
c. Graph exponential functions.	**SE/TE: 439-445, 480, 482**		
Objective 2.4: Define and graph logarithmic functions and use them to solve problems in mathematics and real-world contexts.			
a. Relate logarithmic and exponential functions.	**SE/TE: 448-453, 461-469, 480-482**		
b. Simplify logarithmic expressions.	**SE/TE: 454-459, 480, 482**		

c. Convert logarithms between bases.	**SE/TE: 462-469, 481-482**		
d. Solve exponential and logarithmic equations.	**SE/TE:461-469, 481-482**		
e. Graph logarithmic functions.	**SE/TE: 448-453, 480, 482**		
f. Solve problems involving growth and decay.	**SE/TE: 430-438, 479, 482**		

STANDARD III: Students will use algebraic, spatial, and logical reasoning to solve geometry and measurement problems.

Percentage of coverage in the *student and teacher edition* for Standard III: <u>80</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard III: <u>10</u> %**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries***
Objective 3.1: Examine the behavior of functions using coordinate geometry.			
a. Identify the domain and range of the absolute value, quadratic, radical, sine, and cosine functions.		**High School Mathematics Skills Review and Practice Workbook: 88-89, 102, 201-202, 219, 241, 277-280**	
b. Graph the absolute value, quadratic, radical, sine, and cosine functions.	**SE/TE: 88-92, 111-112, 239, 245-251, 299-300, 302, 414-419, 425-426, 737-748, 772-774**		
c. Graph functions using transformations of parent functions.	**SE/TE: 93-100, 111-112, 253-258, 300, 302, 439-445, 480, 482**		
d. Write an equation of a parabola in the form $y = a(x - h)^2 + k$ when given a graph or an equation.	**SE/TE: 252-258, 300, 302**		
Objective 3.2: Determine radian and degree measures for angles.			

a. Convert angle measurements between radians and degrees.	**SE/TE: 727-733, 772, 774**		
b. Find angle measures in degrees and radians using inverse trigonometric functions, including exact values for special triangles.	**SE/TE: 783-800, 827-828, 830**		
Objective 3.3: Determine trigonometric measurements using appropriate techniques, tools, and formulas.			
a. Define the sine, cosine, and tangent functions using the unit circle.	**SE/TE: 720-725, 749-755, 772-774**		
b. Determine the exact values of the sine, cosine, and tangent functions for the special angles of the unit circle using reference angles.	**SE/TE: 734-755, 770, 772-774**		
c. Find the length of an arc using radian measure.	**SE/TE: 728-733, 772, 774**		
d. Find the area of a sector in a circle using radian measure.			

STANDARD IV: Students will understand concepts from probability and statistics and apply statistical methods to solve problems.			
Percentage of coverage in the *student and teacher edition* for Standard IV: <u>75</u> %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard IV: <u>25</u> %**	
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries***
Objective 4.1: Apply basic concepts of probability.			

a. Distinguish between permutations and combinations and identify situations in which each is appropriate.	**SE/TE: 345-351, 361-362**		
b. Calculate probabilities using permutations and combinations to count events.	**SE/TE: 350 (#73)**	**Data Analysis and Probability Workbook: 56-60** **High School Mathematics Skills Review and Practice Workbook: 111-112**	
c. Compute conditional and unconditional probabilities in various ways, including by definitions, the general multiplication rule, and probability trees.	**SE/TE: 531-537, 541-542, 654-659, 701-702, 704**		
d. Define simple discrete random variables.	**SE/TE: 654-659, 701-702, 704**		
Objective 4.2: Use percentiles and measures of variability to analyze data.			
a. Compute different measures of spread, including the range, standard deviation, and interquartile range.	**SE/TE: 668-676, 703-704**		
b. Compare the effectiveness of different measures of spread, including the range, standard deviation, and interquartile range in specific situations.	**SE/TE: 668-676, 703-704**		
c. Use percentiles to summarize the distribution of a numerical variable.	**SE/TE: 663-667, 702, 704**		
d. Use histograms to obtain percentiles.		**Data Analysis and Probability Workbook: 22, 32**	